60469-220; PA-000.05079-US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard N. Fargo
Serial No.:	10/537,384
Filed:	06/03/2005
Group Art Unit:	3651
Examiner:	Singh, Kavel
Title:	DRIVE BELT FOR A PASSENGER CONVEYOR

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appellant now submits its brief in this appeal. A Credit Card Payment Form is attached. The Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds for any additional fees or credit the account for any overpayment.

Real Party in Interest

Otis Elevator Company is the real party in interest. Otis Elevator Company is a business unit of United Technologies Corporation.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of the Claims

Claims 1-26 are pending.

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Claims 5, 7, 10, 11, 12, 17, 20, 21 and 22 have all been indicated as containing allowable subject matter. Those claims are not on appeal.

Claims 1-4, 6, 8, 9, 13, 14, 15, 16, 18, 19, 23-26 are on appeal. Those claims stand rejected under 35 U.S.C. §103.

Status of Amendments

There are no unentered amendments.

Summary of Claimed Subject Matter

Appellant's claims are directed to a unique drive belt configuration for moving a passenger conveyor. There are two independent claims on appeal. Each of those is reproduced below including reference numerals from the drawings and page and line indications from the specification to show how the claims read on an example embodiment. The reference numerals are found in Figures 1-4.

1. A drive belt (50) for a passenger conveyor, comprising:
an inner side (54) adapted to engage a drive member (44){page 3, lines 30-31}; and
an outer side (56) including a plurality of teeth (60) that are adapted to engage a corresponding portion of a step chain (30), the outer side teeth each including a base (62) and a pliable projection (64) distal from the base {page 4, lines 3-4 and 9-20}.

13. A drive assembly for a passenger conveyor, comprising:
a step chain (30) having a plurality of links (32) each having a plurality of engaging members (70){page 3, lines 16-18};
a drive mechanism (40){page 3, lines 19-20}; and
a belt (50) having an inner side (54) that cooperates with the drive mechanism (44) and an outer side (56) including a plurality of teeth (60) having engaging surfaces (62) that are at least partially concave, a portion (62) of the teeth elastically deforming responsive to contact with the engaging members (70) on the step chain (30), wherein movement of the drive mechanism (44) causes movement of the belt (50) which causes movement of the step chain (30){page 3, line 29 – page 4, line 20}.

Grounds of Rejection to be Reviewed on Appeal

Claims 1-4, 6, 8, 13-16, 18, 19 and 26 stand rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 3,677,388 (the *Boltrek* reference) in view of U.S. Patent No. 6,516,940 (the *Hart* reference).

Claims 9 and 23-25 stand rejected under 35 U.S.C. §103 as being unpatentable over the *Boltrek* reference in view of the *Hart* reference and in further view of U.S. Patent No. 5,624,021 (the *Novak* reference).

ARGUMENT

There is no *prima facie* case of obviousness against any of Appellant's claims. The *Boltrek* reference does not teach what the Examiner contends. Further, the proposed modification cannot be made because it would render the arrangement of the *Boltrek* reference incapable of achieving its intended result because it would make it inoperative and unsatisfactory for its intended purpose.

The rejection of Claims 1-4, 6, 8, 13-16, 18, 19 and 26 under 35 U.S.C. §103 must be reversed.

Applicant respectfully submits that there is no *prima facie* case of obviousness against any of claims 1-4, 6, 8, 13, 14, 15, 16, 18, 19 or 26. The Examiner has rejected those claims under 35 U.S.C. §103 as being unpatentable over the *Boltrek* reference in view of the *Hart* reference. There is no *prima facie* case of obviousness because the references do not teach what the Examiner attributes to the references and the proposed modification to the *Boltrek* reference cannot be made.

The Examiner suggests that the chain 13 in Figures 1, 2 and 3 of the *Boltrek* reference has "an inner side adapted to engage a drive member (23) (c3 11-2); and an outer side including a plurality of teeth (13) that are adapted to engage a corresponding portion of a step chain (11), the outer side teeth each including a base and a pliable projection (13+) distal from the base (Fig.

2)." That is not, however, what the *Boltrek* reference teaches. The links 13 do include a plurality of teeth 13t as can be appreciated from Figure 2. Those teeth 13t engage the drive member 23 (shown in Figure 1). The teeth 13t do not engage a step chain of any sort. There is no teaching in the *Boltrek* reference of any tooth-like engagement between the links 13 and the steps 11 of *Boltrek's* escalator. Instead, the only teaching is that the links 13 pivotally connect the series of steps 11 together. (Column 2, lines 70-71)

Given that the only teeth on the links 13 engage the drive member 23, it is impossible to find teeth corresponding to the outer side teeth of Applicant's claims. Therefore, even if the proposed combination could somehow be made, there is no *prima facie* case of obviousness because the result is not what the Examiner contends. There is only one set of teeth 13t on the links 13 of the *Boltrek* reference and they engage what the Examiner considers the drive mechanism (23). The only way to establish a *prima facie* case of obviousness would be to have another set of teeth other than the teeth 13t on those links 13. Without that, there is no possible *prima facie* case.

In claim 13, Applicant's belt has an inner side that cooperates with a drive mechanism. The Examiner points to the mechanism 23 as the drive mechanism in the *Boltrek* reference. The teeth 13t in the *Boltrek* reference are on only one side of those links and cannot possibly be on an inner side cooperating with the drive mechanism 23 and also on an outer side for engaging a step chain. The fact that the teeth 13t in the *Boltrek* reference cooperate with the driving mechanism 23 makes it impossible to establish a *prima facie* case of obviousness by contending that the teeth 13t somehow also engage a step chain. There is no such teaching in the *Boltrek* reference and no *prima facie* case of obviousness.

Additionally, the rigid metal teeth 13t in the *Boltrek* reference do not have anything corresponding to the "pliable projection" of Appellant's claim 1. The reference also lacks the "portion of the teeth elastically deforming responsive to contact with the engaging members of the step chain." Without any teaching of those, it is impossible to establish a *prima facie* case against claims 1, 13 or those that depend from them, respectively.

Even if it were somehow possible to misconstrue the links 13 of the *Boltrek* reference to correspond to the belt of Applicant's claims, the Examiner's proposed modification to the *Boltrek* reference cannot be made as explained in MPEP 2143.01(VI). The Examiner proposes to replace the metal links 13 of the *Boltrek* reference with a urethane drive belt from the *Hart* reference. That substitution cannot be made without rendering *Boltrek's* escalators inoperative. The links 13 are made of metal as known in the art and as can be appreciated from the cross-sectional illustration of Figure 3. Metal links are required for interconnecting the steps 11 so that the steps remain a set distance relative to each other during escalator operation. If one were to replace the rigid links 13 with a pliable urethane belt as suggested by the Examiner, that would not allow for the steps to maintain a desired and required alignment during escalator operation and would render the system unsuitable for its intended purpose. The Examiner admits that "urethane is known to be stretchable" and that it is the exact reason why a urethane belt cannot be substituted in for the metal chain of the *Boltrek* reference. It is impossible to substitute a pliable urethane belt for the rigid metal links 13 in the *Boltrek* reference. Yet that is exactly what the Examiner proposes when attempting to manufacture a *prima facie* case of obviousness. The proposed modification cannot be made.

Additionally, one skilled in the art would not look to the drive belt 70 of the *Hart* reference for purposes of deciding how or why to replace the metal links 13 of the *Boltrek*

reference. The drive belt 70 in the *Hart* reference does not carry any load of an item being conveyed. Instead, the drive belt 70 wraps around a polymer pulley 65 for purposes of rotating the pulley 65. The links 13 in the *Boltrek* reference, on the other hand, carry the load of the steps 11 and the load of any passengers on any of the steps 11. One skilled in the art would never look to a non-load bearing belt 70 such as that used in the *Hart* reference for determining how to replace the load bearing links 13 of the *Boltrek* arrangement. It is not possible to make the Examiner's proposed modification to the *Boltrek* reference.

Given that the *Boltrek* reference does not contain the teeth required by Appellant's claims and there is no suggestion or legally sufficient reason for modifying *Boltrek's* chain to include such teeth, it is impossible to establish a *prima facie* case of obviousness. Moreover, the Examiner's proposed combination cannot be made because it would render *Boltrek's* metal chain incapable of serving its intended function which would render the entire device inoperative. The rejection must be reversed.

The rejection of claims 9 and 23-25 under 35 U.S.C. §103 must be reversed.

As explained above, the *Boltrek* reference does not teach what the Examiner contends and the proposed combination with the *Hart* reference cannot even be made. The proposed addition of teachings from the *Novak* reference does nothing to remedy the defects in the improper base combination. The Examiner admits that "urethane is known to be stretchable" and that it is the exact reason why a urethane belt cannot be substituted in for the metal chain of the *Boltrek* reference. Further, it is not possible to conceptualize a way in which teeth from the *Novak* reference would somehow be incorporated onto *Boltrek's* chain, which does not include such teeth for any purpose. It would require a complete redesign of *Boltrek's* arrangement to somehow incorporate teeth as suggested by the Examiner. It is clear that the proposed modification including the

teachings of the *Novak* reference is based on impermissible hindsight using Appellant's claims and disclosure as the basis for suggesting how to make such an improper combination. There would be no benefit to adding *Novak's* teeth to the *Boltrek* reference and they would not have anything to interact with without the remainder of the *Boltrek* reference being modified for no reason.

There is no *prima facie* case of obviousness against of claims 9 or 23-25 and the rejection must be reversed.

CONCLUSION

There is no *prima facie* case of obviousness against any of Appellant's claims. The *Boltrek* reference does not teach what the Examiner contends. Even if it could somehow be stretched and strained to allow for the Examiner's interpretation, the proposed modification to the *Boltrek* reference cannot be made as explained above. All rejections must be reversed.

Respectfully submitted,

CARLSON, GASKEY & OLDS, P.C.

May 18, 2009
Date

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CERTIFICATE OF FACSIMILE

I hereby certify that this Appeal Brief relative to Application Serial No. 10/537,384 is being facsimile transmitted to the Patent and Trademark Office (Fax No. (571) 273-8300) on May 18, 2009.

Theresa M. Palmateer

APPENDIX OF CLAIMS

1. A drive belt for a passenger conveyor, comprising:

an inner side adapted to engage a drive member; and

an outer side including a plurality of teeth that are adapted to engage a corresponding portion of a step chain, the outer side teeth each including a base and a pliable projection distal from the base.

2. The belt of claim 1, wherein the projections are rounded.

3. The belt of claim 1, wherein each of the teeth includes a generally concave surface extending between the projection and the base.

4. The belt of claim 1, wherein the teeth each have an engaging surface profile that includes the projection, the engaging surface including a first concave portion having a first radius of curvature beginning adjacent the base, a second concave portion having a second radius of curvature adjacent the first portion and a third concave portion having a third radius of curvature extending between the second portion and the projection.

6. The belt of claim 4, wherein the projection has a first section with a first projection radius of curvature adjacent the third portion and a second section with a second projection radius of curvature extending between the first section and the distal end.

8. The belt of claim 1, wherein the teeth each include a relief near the projection that increases the compliance of the tooth near the projection.

9. The belt of claim 1, wherein the teeth comprise a urethane material.

13. A drive assembly for a passenger conveyor, comprising:

a step chain having a plurality of links each having a plurality of engaging members;

a drive mechanism; and

a belt having an inner side that cooperates with the drive mechanism and an outer side including a plurality of teeth having engaging surfaces that are at least partially concave, a portion of the teeth elastically deforming responsive to contact with the engaging members on the step chain, wherein movement of the drive mechanism causes movement of the belt which causes movement of the step chain.

14. The assembly of claim 13, wherein the step chain engaging members include teeth having a convex surface that is at least partially received within the concave portion of the belt teeth engaging surfaces.

15. The assembly of claim 13, wherein the belt teeth each include a compressible projection near a distal end of the teeth.

16. The assembly of claim 15, wherein the teeth engaging surfaces include a first portion having a first radius of curvature, a second portion having a second radius of curvature adjacent the first portion and a third portion having a third radius of curvature extending between the second portion and the projection.

18. The belt of claim 16, wherein the first, second and third portions establish the concave portion of the engaging surface and the projection establishes a convex portion of the engaging surface.

19. The assembly of claim 18, wherein the projection has a first section with a first projection radius of curvature adjacent the third portion and a second section with a second projection radius of curvature extending between the first section and the distal end.

23. The assembly of claim 13, wherein the belt comprises a body and the body and the teeth comprise a urethane material.

24. The assembly of claim 23, wherein the belt teeth each include a projection near an end of the teeth spaced from the body.

25. The belt of claim 9, wherein the inner side and outer side are on opposite sides of a belt body and wherein the belt body comprises the urethane material.

26. The belt of claim 1, wherein at least a portion of the teeth in a vicinity of the projection deforms elastically responsive to contact with a step chain tooth.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.